

ABSTRACT OF THE DISCLOSURE

A thin film forming apparatus includes: a first electrode having a first discharge surface and a second electrode having a second discharge surface, the first discharge surface facing opposite to the second discharge surface to form a discharge space; a gas supply unit for supplying a gas including a thin film formation gas to the discharge space; a power source for discharging and activating the gas by applying a high frequency electric field across the discharge space; and a film transporting mechanism for transporting a protecting film for preventing at least one of the first electrode and the second electrode from being exposed to the activated gas, wherein a thin film is formed by exposing a substrate to the activated gas and, the protecting film is transported in contact with at least one of the first discharge surface and the second discharge surface and with at least a part of a surface other than the discharge surface which continues to the discharge surface.